

JAN 04 2005

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REMARKS

In the Office Action, dated October 4, 2004, the Examiner states that Claims 3-16 are pending, Claims 3-13 are rejected and Claims 14-16 are allowed. By the present Amendment, Applicant amends the claims.

In the Office Action, Claim 3 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite as to the second recitation of "a nozzle". The Applicant has amended that claim so that the second recitation of the nozzle element is "the nozzle".

In the Office Action, Claims 3, 4, 11 and 13 are rejected as being unpatentable over Smith (US 3,792,530). Claims 3, 4, 9 and 11-13 are rejected as being unpatentable over Hirdes (US 4,768,955). Each of the remaining dependent claims are rejected as unpatentable over either Smith or Hirdes in view of another cited reference.

The Applicant has amended independent Claim 3 to clarify that claim and considers that Claim 3 is patentable over both Smith or Hirdes for the following reasons.

With regard to Smith, Smith teaches a dental instrument serving the dual function of inserting amalgam into the cavity in a tooth and compacting the amalgam after having been so inserted, see column 3 lines 28-32. To enable this, the dental instrument is provided with a push knob 9 which is to be actuated manually to push forward a plunger 6 by which the amalgam is expelled, see column 6 lines 30-35. A separate switch (see column 6, lines 9-12) is actuated to switch the vibrator on, see column 6 lines 35-44, to compact the amalgam in the tooth cavity. To enable this, it is indispensable that the plunger 6 oscillates back and forth in the bore in order to generate impact forces which can compact the amalgam in the tooth cavity.

In contrast to this, according to the present invention the sound generator sets the nozzle into oscillations while the filling compound is conveyed from the supply container to the nozzle. This is an important difference because the present invention teaches away from Smith by teaching the reduction of the viscosity of a highly viscous filling compound only while it passes through the nozzle by oscillating the nozzle. This has the additional effect, that the filling compound is no longer under substantial oscillation as soon as it has been expelled from the nozzle so that the viscosity of the filling compound which has been injected into the tooth cavity will rise towards its original viscosity. The rise in viscosity of the expelled material is essential to keep the filling within the tooth cavity. If, however, a highly viscous material, the viscosity of which can be lowered under the action of sound or ultrasound, would be injected into a tooth cavity by using a dental instrument as disclosed by Smith then the material would be fluidized not only within the bore 5 but also within the tooth cavity because the plunger 6 oscillates back and forth in the longitudinal direction of the bore 5 and acts directly upon the filling material in a direction towards the tooth cavity so that the filling material in the tooth cavity, too, is substantially set under oscillations preventing a solidification and compaction of the filling material in the tooth cavity. There is even a risk of loss of filling material from the tooth cavity.

Therefore, if the device taught by Smith is used with a highly viscous filling material having a viscosity that is lowered under the action of sound, the tooth cavity will not become compacted (as intended by Smith) but fluidized so that the material can hardly be kept in the tooth cavity, particularly those cavities which open downwardly. Please, see also the advantages which are listed in the specification of the present application as filed, on pages 4 and 5.

In the Smith device, the plunger acts directly upon the amalgam in the longitudinal direction of the bore. The rejections state that the vibration generator, through the plunger, will inherently vibrate the nozzle. The Applicant considers that Claim 3 is differentiated from Smith in that the sound generator is connected to the nozzle and the oscillation of the nozzle is transmitted to the filling compound as the filling compound flows through the nozzle. This is the opposite of what is taught in

Smith where the vibration generator acts upon the amalgam, and the vibrations are thus transmitted to the nozzle by the amalgam.

The present invention claims that a sound generator sets the nozzle into oscillation while the filling compound is conveyed from the supply container to the nozzle. With regard to Hirdes, Hirdes oscillates expelling element 3 after it protrudes from the nozzle as shown in Figs. 7. The rejection specifically states that the oscillator 50 will inherently set the nozzle into oscillation and that the time at which the generator is used with respect to the dispensing through the nozzle is merely an intended use. However, this is not true. Hirdes discloses with respect to the embodiment shown in Figs. 5-7 that the hammer 37 acting upon the rear end of the expelling element 3 is driven by a spring motor 34 which rotates a drum 39. The drum, however, is locked by the hammer 37 extending into the space between two strips 38 provided on the inner surface of the drum 39. The drum is released when the expelling element 3 has reached its extreme position as shown in Fig. 7 because then the hammer 37 has moved out of the engagement with the strips 38 so that the drum will rotate and hammer against the rear end of the expelling element 3. See column 8 lines 35 to 49. Thus, it is not a matter of intended use but a constructional feature that the hammer 37 will act, and can only act upon the rear end of the expelling element 3 after this has reached its extreme forward position as shown in Fig. 7. Likewise, in the second embodiment of Hirdes shown in Fig. 9, an ultrasonic vibrator 50 will not come into contact with the hook-shaped end 3" of the expelling element 3 until the expelling element 3 is displaced to its extreme forward position in which the hook-shaped end abuts against a resonator surface 51 of the vibrator, see column 9 lines 20 to 28.

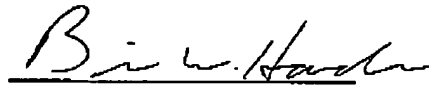
Therefore, Hirdes does not disclose the claimed feature of the sound generator setting the nozzle into oscillation while the filling compound is conveyed to and through the nozzle.

In view of these differences between the claimed invention and the cited prior art, the Applicant considers that Claim 3 and those claims dependent thereon overcome the stated rejections.

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In light of the foregoing response, all the outstanding objections and rejections are considered overcome. Applicant respectfully submits that this application should now be in condition for allowance and respectfully requests favorable consideration.

Respectfully submitted,



January 4, 2005

Date

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